

Eye Model - Ray trace

Trace a forward ray and a reverse ray -
both parallel to the axis at a height of 1.
- see next pg.

① Reverse Ray: $VF = -15.31 \text{ mm}$

$$u_1 = .05959$$

$$y_1 = .9126 \text{ mm}$$

$$\phi = n_1 u_1 / y_3 = .0596 / \text{mm} \quad y_3 = 1$$

$$f_e = 1/\phi = 16.78 \text{ mm}$$

$$f_F = -16.78 \text{ mm}$$

$$d = VP = VF - f_F = 1.47 \text{ mm}$$

② Forward Ray: $V'F' = 16.96 \text{ mm}$

$$u_3' = -.04461$$

$$y_3' = .7568$$

$$\phi = -n_3 u_3' / y_1 \quad n_3 = 1.336$$

$$= .0596 / \text{mm} \quad y_1 = 1$$

$$f_R' = n_3 / \phi = 22.41 \text{ mm}$$

$$d' = V'F' - f_R' = -5.45 \text{ mm}$$

(ray trace)

YNU Method

F' 4 5 6 7
F 0 1 2 3

ϕ	7.8	10.0	-6.0				
t	?	3.6	3.6	?			
n	1.0	1.336	1.413	1.336			

ϕ	-0.4308	-0.077	-0.1283				
t/n	15.31	2.695	2.548	12.69			

Forward Ray

y	1.0	1.0	.8839	.7568	0		
nu	0.0	-0.4308	-0.4989	-0.5960			
u	0.0			-0.4461			

Reverse Ray

y	0	.9126	.9673	1.0	1.0		
nu	.05959	.02028	.01283	0.0	0.0		
u	.05959			0.0	0.0		

y							
nu							
u							

$V'F'/n_3 = 12.69 \text{ mm}$ $VF' = -15.31 \text{ mm}$
 $V'F' = 16.96 \text{ mm}$ $(u_1 = .05959)$
 $(u_3 = -.04461)$ $(y_1 = .9126 \text{ mm})$
 $(y_3 = .7568 \text{ mm})$

Eye Node

$\phi = .0596/\text{mm}$

$f_e = 16.78 \text{ mm}$ $f'_F = -16.78 \text{ mm}$ $f'_R = 22.41 \text{ mm}$

$d = 1.47 \text{ mm}$

$PP' = .28 \text{ mm}$

$d' = -5.45 \text{ mm}$

